Anxiety and Depression among Nursing Staff at King Fahad Medical City, Kingdom of Saudi Arabia

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Abstract: Background: Nursing staff are exposed to numerous stresses that affect their psychological status. This study aimed to survey nursing staff at KFMC, for anxiety and depression symptoms using HAD scale. **Methods:** Nursing staff at KFMC were received self-administered questionnaires containing socio-demographic data, work-related data and the bilingual (English and Arabic) Hospital Anxiety and Depression scale (HADS). **Results:** For anxiety 53% of the study subjects were normal (scores 0-7) and 27% were classified as cause of concern (scores 8-10) while the probable clinical cases (scores ≥11) represented 20%. For depression, 75% were normal (scores 0-7) and 15% were classified as cause of concern (scores 8-10) while the probable clinical cases (scores ≥11) represented 10%. The highest prevalence rate of probable clinical cases of anxiety (23%) was reported among the age group 20 to less than 30 years. While the highest prevalence rate of probable clinical cases of depression (10.9%) was reported among the age group 30 to less than 40 years. Nurses from the Middle East region have significantly higher anxiety and depression symptoms prevalence rates than the other nationalities. Also, nurses who are not practicing physical activity have significantly higher anxiety and depression symptoms prevalence rates than those who are practicing physical activity. For smoking, there was a significant association between both anxiety and depression and the current smoking status where smokers have higher anxiety and depression symptoms prevalence rates. The study also revealed that there is no statistically significant association between working life characteristics and anxiety and depression symptoms. **Conclusion:** Middle Eastern nurses, Divorced/widowed nurses, lack of physical exercise and smoking were risk factors for anxiety/depression symptoms among nursing staff. **Recommendation:** Annual HAD scale might be helpful in identifying nursing staff who are considered as probable clinical case of anxiety and/or depression for support program from nursing management. Smoking cessation and physical exercise is in favor of good psychological health of nursing staff. Major health education and health promotion programs are required to foster exercise and no smoking culture among nursing staff.

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1. Introduction

Depression and anxiety are common conditions with prevalence ranging between ten to twenty percent in the general population for any twelve-month period.[1] Depression in the working age population is estimated to cost $12 billion annually in medical care and approximately $44 billion annually in lost productivity.[2] Mental health affects physical health, job performance and healthcare utilization. Stress, depression and anxiety disorders contribute to absenteeism and lack of confidence[3] .Hospital anxiety and depression scale is a self assessment tool has been developed to be a reliable instrument for detecting states of depression and anxiety in the setting of hospital, medical or outpatient clinic.[4-6]

There is a strong international experience with use of HAD scale of more than 200 published studies from most medical settings worldwide. The HADS gives clinically meaningful results as a psychological screening tool, in clinical groups' comparisons and in correlation studies with several aspects of disease and quality of life. [7-8]

Several studies provide evidence for the association between work stress and mild psychiatric morbidity among emergency nurses. The most commonly reported manifestations were sleep disturbances, anxious mood, and depressed mood. [9]

A descriptive, correlation study was performed in Brazil [10] with the objective to evaluate anxiety and depression among nursing professionals working in surgical units. Participants were 211 nurses and data collection was performed using a questionnaire for the socio-demographic characterization and the Hospital Anxiety and Depression Scale. Results showed that the workers average score.

Another study conducted in Greece for comparison of anxiety and depression for 76 Greek nursing personnel and 66 doctors using validated translations of the Spielberger State-Trait Anxiety Inventory and the Beck Depression Inventory. Male

nurses had the lowest scores on trait anxiety, while female doctors had the highest scores, followed by female nurses. Depression scores were not different between doctors and nurses, regardless of sex. Age and depression scores were positively correlated only for the female nurses. The findings suggest that interventions for diagnosis and stress management in the health-care workplace should be equally targeted for nursing and medical personnel. [11]

The aim of another study done in New York was to estimate the prevalence of depression among nursing home residents, and the extent of depression recognition among nursing home staff. Based on psychiatric evaluation, the prevalence estimate for probable and/or definite major depressive disorder among testable subjects was 14.4%. The estimate for minor depression was 16.8%. [12]

Anxiety and depression are the most common psychological disorders that affect worker population. It can affect the productivity of the institution. Addressing them and its associated risk factors will help reduce these disorders among working population that will improve productivity, reduce absence and loss of resources on treatment, investigation and rehabilitation.

Psychological as well as physical fitness are important for nursing staff for proper work performance, so this study aimed to determine the prevalence rate of and associated factors for anxiety and depression symptoms among nursing staff.

2.Materials and Methods:

Study design: this is a cross sectional study, conducted at King Fahad Medical City (KFMC), a tertiary care health facility in Riyadh, Saudi Arabia.

Population and sample: the study population comprised nursing staff from all hospitals and centers inside KFMC, 1300 questionnaires and HAD scale were distributed; participation was optional and 715 (55%) nurses had been participated in this study. Participants' consent and ethical approval were obtained; IRB number 11-086; date 5/11/2011.

Data collection instruments: We used a questionnaire covering socio-demographic data (e.g. age, gender, marital status, nationality, weight, height, practice of physical activity and smoking) and work life characteristics (e.g. type of job, working hours/day, work duration in years at KFMC, overtime, and nightshifts). We also used the HAD scale (both English and Arabic versions), the Arabic one was translated and validated by Dwedar. [12] The scale contains 14 multiple-choice questions, with two sub-scales: anxiety (HADS-A) and depression (HADS-D), with seven items in each domain. Scores for each item range from zero to three, and the global score for each subscale range from zero to 21. To interpret the scores of the two subscales, it is considered that, the higher the score, the greater the chance that the person will develop an anxiety and/or depression disorder. [4] The cut-off points for normal score is equal to or less than 7, 8-10 will be classified as cause of concern – monitor for change, scores more than or equal to 11, will be tagged as probable clinical case .

Statistical analysis: Collected data were enter to a personal computer using SPSS version 17 software, frequency distribution tables and pie-charts were produced. Comparison of continuous variables among different groups was done using students t test. Cross tables for different categories of categorical variables were done. Chi square test was used for test of difference among different groups for categorical data. Multivariate logistic regression analysis was used to check for the effect of multiple variables on occurrence of anxiety and depression.

3. Results:

The total number of the study participants was 715; most of them were females (632; 88.4%). The mean age of the study group was 35.2±8.2 years. For the marital status, 492 (68.8%) were married, 198 (27.6%) were singles, 13 (1.8%) were widowed, and 12 (1.6%) were divorced. South- Asians represented (527; 73.7%), nurses from the Middle East area were 111 (15.5%), African and Western nurses were 48 (6.7%) and 29 (4.0%) respectively. Regarding the smoking status, most of the study subjects were non-smokers (655; 91.6%). About two thirds of the study subjects (465; 65.0%) were practicing physical activity and their mean Body Mass Index (BMI) was 24.5±4.4. Working life characteristics were as follows: mean work duration at KFMC was 4.3±2.3 years, mean working hours/day was 11.5±0.8, 508 (71.0%) worked in night shifts and only 56 (7.8%) worked overtimes.

Figures (1) and (2) display the prevalence of anxiety and depression among nursing staff at KFMC through the application of the HAD scale. For anxiety 53% of the study subjects were normal (scores 0-7) and 27% were classified as cause of concern (scores 8-10) while the probable clinical cases (scores ≥11) represented 20%. For depression, 75% were normal (scores 0-7) and 15% were classified as cause of concern (scores 8-10) while the probable clinical cases (scores ≥11) represented 10%.

From tables (2) and (3), the highest prevalence rate of probable clinical cases of anxiety (23%) was reported among the age group 20 to less than 30 years. While the highest prevalence rate of probable clinical cases of depression (10.9%) was reported among the age group 30 to less than 40 years. Males had higher prevalence rates of anxiety (26.5%) and

depression (26.5%) than females (18.8% and 7.4%). The association between gender and depression was statistically significant. Divorced nurses had the highest prevalence rate of anxiety followed by married nurses (50% and 20% respectively).

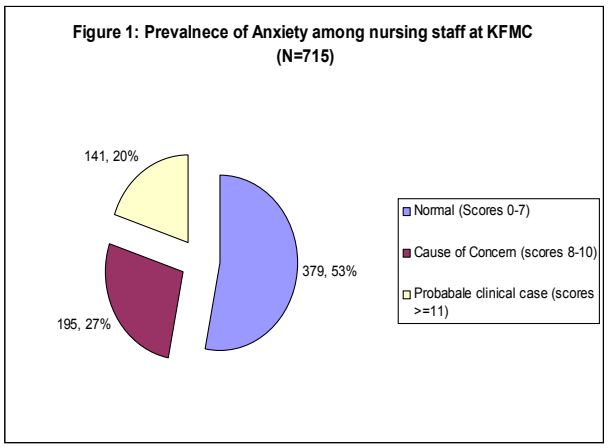
For depression, widowed nurses had the highest prevalence rate followed by divorced nurses (18.2% and 10% respectively). Nurses from the Middle East region have significantly higher anxiety (30.7%) and depression (31.6%) symptoms prevalence rates than the other nationalities. Also, nurses who are not practicing physical activity have significantly higher anxiety and depression symptoms prevalence rate than those who are practicing physical activity (24% and 12.8% respectively)

For smoking, there was a significant association between both anxiety and depression and the current smoking status where smokers have higher anxiety (36.8%) and depression (31.7%) symptoms prevalence rates; compared to only 19.2% and 7.6% respectively among non smoking nurses. Regarding the BMI and the working life characteristics and their relation to anxiety and depression symptoms, results showed that there are no statistically significant differences as regards the prevalence of anxiety and depression symptoms among different BMI categories and also among the different working life characteristics (Tables 3 and 4).

Using multiple logistic regression analysis results in tables 5 and 6, we found that nursing staff who are non smokers (OR=0.36, 95%CI=0.19-0.67) are less likely to have anxiety symptoms, and also are less likely to have depression symptoms (OR=0.33; 95%CI=0.14-0.76).

Table (1): Socio-demographic and Working Life Characteristics of the Study Subjects (n=715)

Variable	Frequency	Percent
Age (mean ± SD)	35.2 ± 8.2	
Gender:		
Male	83	11.6%
Female	632	88.4%
Marital status:		
Married	492	68.8%
Single	198	27.6%
Widow	13	1.8%
Divorced	12	1.6%
Nationality:		
South Asia	527	73.7%
Middle East	111	15.5%
African	48	6.7%
Western	29	4.0%
Physical Activity:		
Yes	465	65.0%
No	250	35.0%
Smoking:		
No	655	91.6%
Yes	60	8.4%
Body Mass Index:		
(mean ± SD)	24.5 ± 4.4	
Work duration/year at KFMC:		
(mean ± SD)	4.3 ± 2.3	
Working hours/day:		
(mean ± SD)	11.5 ± 0.8	
Night shift:		
Yes	508	71.0%
No	207	29.0%
Overtime work:		
Yes	56	7.8%
No	659	92.2%



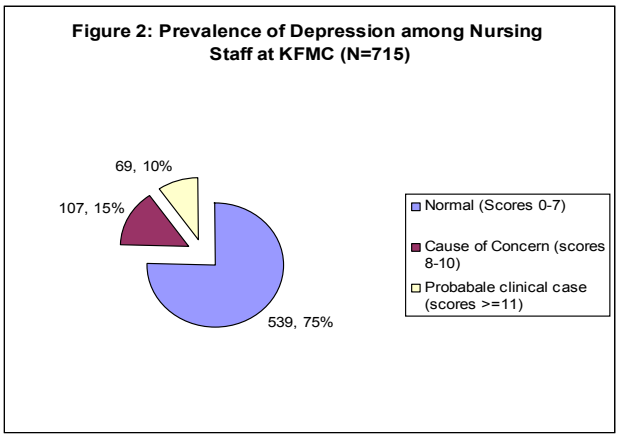


Table (2): Association between Socio-demographic Characteristics and Presence of Anxiety (Probable Clinical Case, Scores ≥ 11) among Nursing Staff at KFMC, Saudi Arabia, 2011

Socio-demographic Characteristics	No anxiety (scores < 11) n= 574 No. (%)	Probable clinical case of anxiety (scores ≥11) n= 141 No. (%)	*P*-value
Age (yr):			
20-	161 (77.0%)	48 (23.0%)	
30-	258 (80.0%)	62 (20.0%)	0.28
40-	155 (83.3%)	31 (16.7%)	
Gender:			
Male	61 (73.5%)	22 (26.5%)	0.09
Female	513 (81.2%)	119 (18.8%)	
Marital status:			
Married	394 (80.0%)	98 (20.0%)	
Single	165 (83.3%)	33 (16.7%)	
Widow	9 (69.2%)	4 (30.8%)	0.0000
Divorced	6 (50.0%)	6 (50.0%)	
Nationality:			
South Asia	439 (83.3%)	88 (16.7%)	
Middle East	77 (69.3%)	34 (30.7%)	
African	38 (79.1%)	10 (20.9%)	0.0003
Western	20 (69.0%)	9 (31.0%)	
Physical Activity:			
Yes	384 (82.5%)	81 (17.5%)	
No	190 (76.0%)	60 (24.0%)	0.0341
Smoking:			
Yes	38 (63.3%)	22 (36.8%)	
No	536 (81.8%)	119 (19.2%)	0.0005
Body Mass Index:			
Underweight	28 (77.7%)	8 (22.3%)	
Normal	322 (79.7%)	82 (20.3%)	0.47
Overweight & obese	224 (81.4%)	51 (18.6%)	

Table (3): Association between Socio-demographic Characteristics and Presence of Depression (Probable Clinical Case, Scores ≥ 11) among Nursing Staff at KFMC, Saudi Arabia, 2011

Socio-demographic Characteristics	No depression (scores < 11) n= 646 No. (%)	Probable clinical case of depression (scores ≥11) n= 69 No. (%)	*P*-value
Age (yr):			
20-	185 (89.8%)	21 (10.2%)	
30-	288 (89.1%)	35 (10.9%)	0.34
40-	173 (91.0%)	13 (9.0%)	
Gender:			
Male	61 (73.5%)	22 (26.5%)	0.0000
Female	585 (92.6%)	47 (7.4%)	
Marital status:			
Married	448 (91.2%)	44 (8.8%)	
Single	180 (90.6%)	18 (9.4%)	
Widow	9 (81.8%)	4 (18.2%)	0.016
Divorced	9 (90.0%)	3 (10%)	
Nationality:			
South Asia	505 (95.8%)	22 (4.2%)	
Middle East	76 (68.4%)	35 (31.6%)	
African	38 (79.2%)	10 (20.8%)	0.0000
Western	27 (93.0%)	2 (7.0%)	
Physical Activity:			
Yes	428 (92.0%)	37 (8.0%)	
No	218 (87.2%)	32 (12.8%)	0.036
Smoking:			
Yes	41 (68.3%)	19 (31.7%)	
No	605 (92.4%)	50 (7.6%)	0.0000
Body Mass Index:			
Underweight	32 (88.9%)	4 (11.1%)	
Normal	368 (91.0%)	36 (9.0%)	0.74
Overweight & obese	246 (89.5%)	29 (10.5%)	

Table (4): Association between Working Life Characteristics and Presence of Anxiety and Depression (Probable Clinical Case, Scores ≥ 11) among Nursing Staff at KFMC, Saudi Arabia, 2011

Working Life Characteristics	No anxiety (scores < 11) n= 574 No. %	Probable clinical case of anxiety (scores ≥11)n= 141 No. %	*P*- value	No depression (scores < 11)n= 646 No. %	Probable clinical case of depression (scores ≥11) n= 69 No. %	*P*- value
Work duration/ year at KFMC (mean ± SD)	4.3±2.4	4.2±2.1	0.76	4.2±2.2	5.0±3.4	0.1
Working hours/day (mean ± SD)	11.4±0.9	11.5±0.8	0.45	11.5±0.8	11.2±1.0	0.1
Night shift:						
Yes	408 (80.3%)	100 (19.7%)		464 (91.3%)	44 (8.7%)	
No	166 (80.2%)	41 (19.8%)	0.97	182 (87.9%	25 (12.1%	0.16
Overtime work:						
Yes	40 (71.4%)	16 (28.6%)		48 (85.7%)	8 (14.3%)	
No	534 (81.0%)	125 (19.9%)	0.5	598 (90.7%)	61 (9.3%)	0.1

Table (5): Logistic Regression Analysis for Anxiety as a Dependent Variable

Variable	Beta	Standard Error	*P*- value	Odds Ratio	95% C.I. for OR
Smoking					
Yes	0.66	1.12	0.54	1.94	0.24-15.87
No	-1.04	0.33	0.00	0.36	0.19- 0.67
Physical Activity					
Yes	-0.63	0.56	0.26	0.53	0.18- 1.59
No	0.43	0.22	0.04	1.53	1.00- 2.34
Constant	-0.66	0.31	0.03	0.52	

Table (6): Logistic Regression Analysis for Depression as a Dependent Variable

Variable	Beta	Standard Error	*P*- value	Odds Ratio	95% C.I. for OR
Smoking					
Yes	-20.11	170	0.99	0.00	0
No	-1.12	0.43	0.01	0.33	0.14-0.76
Work duration/ year at KFMC	0.14	0.07	0.04	1.14	1.00- 1.31
Constant	2.89	2.18	0.18	18.12	

4. Discussion:

Nursing staff are exposed to a variety of work-related stress that affects their productivity and their psychological health. This study showed that 47% of nursing staff had anxiety symptoms (HAD Score >=8). Off those, 20% were probable clinical cases (HAD Score>=11). These figures are higher than the prevalence reported by Schmidt D. et al., 2011, [10] in a study conducted in Brazil and found that the prevalence of anxiety (HAD Score >=8) was 31.3% among nursing professionals working at surgical units. In another study conducted in Greece [9] and surveyed 213 nursing staff to investigate the presence of anxiety and stress symptoms among emergency nursing personnel, using the Hamilton anxiety scale, the authors reported that 10.7% had very severe anxious mood. The differences in reported prevalence might be explained by the use of a different survey tool than ours, also we had a much larger sample size and we have to put into consideration the diversity of the nationalities in our study sample of nursing staff at KFMC.

As for depression, in the current study 25% of nursing staff had symptoms of depression (HAD score >=8), of those, only 10% represented probable clinical case (HAD score >=11), which are comparable to the study conducted by Schmidt D 2011 [10] who reported that the prevalence of depression symptoms among nursing professionals were 24.2%. While in the Stathopoulou study in Greece [9] nursing staff had a high prevalence (23.9%) of severe depressive mood, which is even much higher figure than our study, this difference might be explained by use of different survey tool.

In the present study, we couldn't find statistically significant association between both overtime work and night shift and the manifestations of anxiety (HAD Score >=11) or depression. As shown in Table 4; which is in contrast to the study of Boya F et al., 2008 [14], the authors reported that anxiety is significantly correlated with both night work and overtime work.

In our study, we found that nurses who are practicing physical exercise are less likely to have anxiety symptoms compared to those who are not practicing physical exercise, using chi square test (Table 2, p=0.034), but failed to prove statistical significance using multivariate analysis (Table 5).(OR=0.53, 95%CI =0.18-1.59).

Also interestingly, in our study we found that nursing staff who are smokers are more likely to have anxiety and depression symptoms as in table 2 and table 3. While in multivariate analysis we found significant association between smoking and depression symptoms using HAD scale (Table 6).

Mykletun A et al., 2007 [15], examined association of smoking with depression and anxiety, he screened 60814 in a population-based health survey using the HAD scale and reported that the association with smoking was strongest in comorbid anxiety depression, followed by anxiety, and only marginal in depression. Findings of Mykletun A et al., 2007[15] is in agreement with our findings inspite of our much smaller sample size compared to his, and it was a single center study.

Smoking cessation and physical exercise is in favor of good psychological health of nursing staff.

Conclusion and Recommendations:

Middle Eastern nurses, Divorced/widowed nurses, lack of physical exercise and smoking were risk factors for anxiety/depression symptoms among nursing staff.

Major health education and health promotion programs are required to foster exercise and no smoking culture among nursing staff. Annual HAD scale might be helpful in identifying nursing staff who are considered as probable clinical case of anxiety and/or depression for support program from nursing administration.

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